

**Amendment and Response**

Applicant: John C. Bruce et al.

Serial No.: 10/778,006

Filed: February 12, 2004

Docket No.: M190.150.101 / PD-272.00

Title: CONTACT TONOMETER USING MEMS TECHNOLOGY

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**IN THE DRAWINGS**

Please replace FIGS. 10a and 10b according to the formal replacement sheet provided.

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**REMARKS**

This is responsive to the Non-Final Office Action mailed April 29, 2005. In that Office Action, the Examiner objected to Figure 10a in the specification. The Examiner rejected claims 1-6, 8-18, 20-30, and 32-38 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,746,400 ("Rathjen"). Claims 7, 19, and 31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Rathjen in view of U.S. Patent No. 4,724,843 ("Fisher").

With this Response, claims 1, 13, 25, and 26 have been amended. Claims 1-38 remain pending in the application and are presented for reconsideration and allowance.

**Objections to the Drawings**

The drawings stand objected to on such grounds that "the lead lines for reference characters '54' and '58' do not appear to be directed to 'the second side of the crystal' and 'the bottom of the crystal' respectively." *NFOA 4-29-05* at pg. 2, para. 1. A set of replacement drawings including changes to FIGS. 10a and 10b is provided in an effort to remedy the Examiner's grounds of objection. As such, it is respectfully requested that the objection to the drawings on such grounds be withdrawn.

**Objections to the Specification**

The specification stands objected to according to informalities identified at pg. 22, l. 14 and pg. 29, l. 17. *NFOA 4-29-05* at pg. 3, para. 2. Those sections of the specification have been amended in an effort to remedy the typographical errors identified by the Examiner. As such, it is respectfully requested that the objection to the specification on such grounds be withdrawn.

**Support for Amendments to the Claims**

Support for the amendments to claims 1 and 26 can be found, for example, at pg. 11, ll. 14-22 and FIGS. 2, 3, and 20. It is believed that one having ordinary skill in the art would understand that the contact end 6 would be the sole portion of the tonometer used to contact an eye and that only the single contact surface and a single MEMS device 10 are required to sense

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IOP, such that the applicant was in possession of such limitations. As such, it is believed that the limitations of claims 1 and 26 as amended are fully supported by the application.

The amendments to claims 13 and 25 are supported, for example, at pg. 16, ll. 2-15 and FIG. 20. As shown and described, the first housing member is shaped to receive a portion of a human finger and the second housing portion is configured to receive a portion of a human hand. As such, the limitations of claims 13 and 25 as amended are fully supported by the application.

**35 U.S.C. §§ 102(e) & 103(a) Rejections**

Claims 1-6, 8-18, 20-30, and 32-38 stand rejected under 35 U.S.C. §102(e) as being anticipated by Rathjen. Independent claims 1 and 26 as amended relate, in part, to a contact tonometer, or a hand-held contact tonometer, for sensing intraocular pressure (IOP) including a single contact surface for making contact with a surface of an eye and a single micro-electro-mechanical system (MEMS) device connected to the contact surface wherein the MEMS device produces an electrical signal corresponding to the force applied by the contact surface to the surface of the eye when the surface of the eye is contacted by the contact surface. The contact tonometer is adapted such that only a single contact surface and a single MEMS device are required for sensing IOP. For at least the reasons described below, the cited references fail to teach or suggest such limitations.

Rathjen describes a device that determines eye pressure by acquiring data from multiple pressure sensors. *Rathjen* at Abstract. In particular, Rathjen discusses a plurality of pressure-sensing elements disposed in a sensor array. *Rathjen* at col. 2, ll. 54-58. The pressure sensor array comprises “at least one line, but preferably a plurality of lines, of pressure-sensing elements.” *Rathjen* at col. 2, ll. 50-54. The array arrangement is necessary to accomplish the overriding advantage of determining intraocular pressure with “spatial resolution.” *Rathjen* at col. 2, ll. 50-58. With this in mind, and with reference to FIG. 2 of Rathjen, the pressure-sensing elements 111 are all placed on a cornea 21 of an eye to obtain pressure data. *Rathjen* at col. 5, ll. 7-13. Thus, while Rathjen requires multiple, distinct sensor surfaces, in direct contrast, independent claims 1 and 26 as amended include limitations relating to a single contact surface and a single MEMS. Thus, Rathjen fails to teach or suggest all of the limitations of the

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independent claims as amended. In fact, Rathjen teaches away from such limitations by teaching the advantages of multiple distinct sensor surfaces distributed in an array and contacting an eye across many surfaces.

Dependent claims 7, 19, and 31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Rathjen in view of Fisher. However, as described above, Rathjen fails to teach or suggest the limitations of independent claims 1 and 26, and, in fact, teaches away from such limitations. While a combination of Rathjen and Fisher is not believed to teach or suggest the limitations of claims 1 and 26, even if a combination of Rathjen and Fisher were argued to provide all of the limitations of independent claims 1 and 26, such a combination would be improper. In particular, it is improper to combine references when they teach away from their combination. MPEP §§ 2141.01, .02, 2145(X)(D). As such, independent claims 1 and 26 present patentably distinct matter from the cited references.

In light of the above clarifications, the cited references fail to teach or suggest the limitations of independent claims 1 and 26 as amended. Claims 2-25 and 27-38 depend, in some form, from independent claims 1 and 26 as amended. Therefore, they are believed to present patentably distinct matter from the cited references for reasons similar to those described above in association with the independent claims. As such, the rejection of those claims has been fully traversed. It is respectfully requested that the rejection of claims 1-38 be withdrawn, with notice and allowance to that effect provided.

Also, the dependent claims can be further distinguished from cited references for at least the additional reasons described below. For example, dependent claim 13 relates, in part, to a first housing member shaped to receive a portion of a human finger, the first housing member maintaining the contact surface and the MEMS device such that a user can bring the contact surface into contact with an eye without bringing a remainder of the contact tonometer into contact with the eye. With reference to FIGS. 2 and 3 of Rathjen and FIG. 6 of Fisher, for example, it is believed that the cited references fail to teach or suggest such limitations. Therefore, it is believed that dependent claim 13 should be deemed allowable for at least such additional reasons.

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Claim 25 relates, in part, to a second housing member coupled to the first housing member and shaped to receive a portion of a human hand, the second housing member housing a display. Again, with reference to FIG. 3 of Rathjen and FIG. 6 of Fisher, for example, it is believed that the cited references fail to teach or suggest such limitations. As such, it is believed that dependent claim 25 should be deemed allowable for at least such additional reasons.

**CONCLUSION**

In view of the above, Applicant respectfully submits that pending claims 1-38 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1-38 is requested.

Applicants hereby authorize the Commissioner for Patents to charge Deposit Account No. 50-0471 in the amount of \$1,020.00 to cover the fees as set forth under 37 C.F.R. 1.17(a)(3).

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to Timothy A. Czaja Telephone No. (612) 573-2004, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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**Medtronic, Inc.**

Attn: Patent Department

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Respectfully submitted,

John C. Bruce et al.,

By their attorneys,

DICKE, BILLIG & CZAJA, PLLC

Fifth Street Towers, Suite 2250

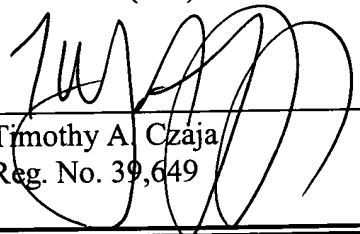
100 South Fifth Street

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Telephone: (612) 573-2004

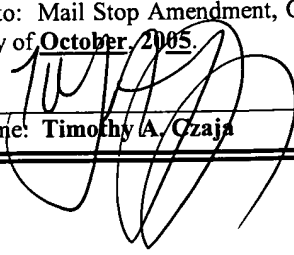
Facsimile: (612) 573-2005

Date: October 31, 2005  
TAC:jmc

  
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Timothy A. Czaja  
Reg. No. 39,649

CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 31<sup>st</sup> day of October, 2005.

By   
\_\_\_\_\_  
Name: Timothy A. Czaja

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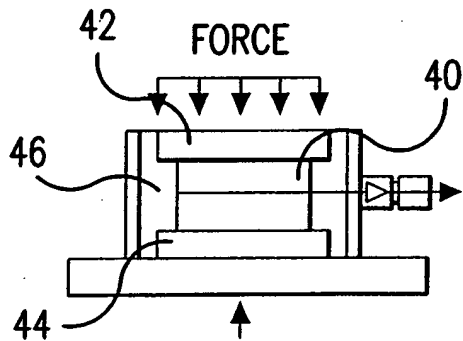
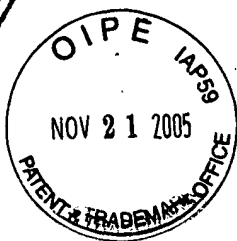


FIG. 8a

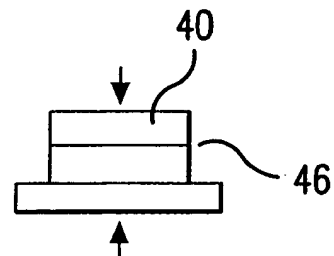


FIG. 8b

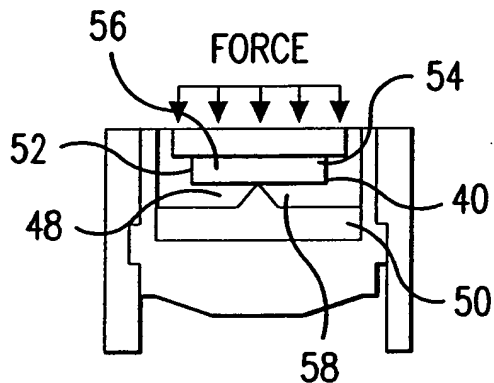


FIG. 9a

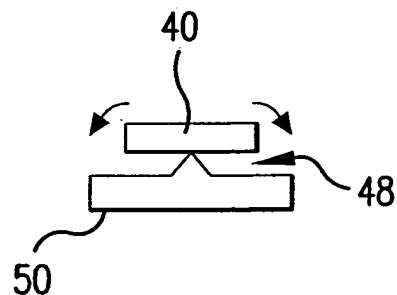


FIG. 9b

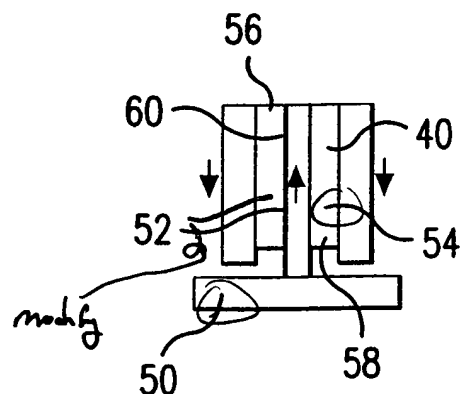
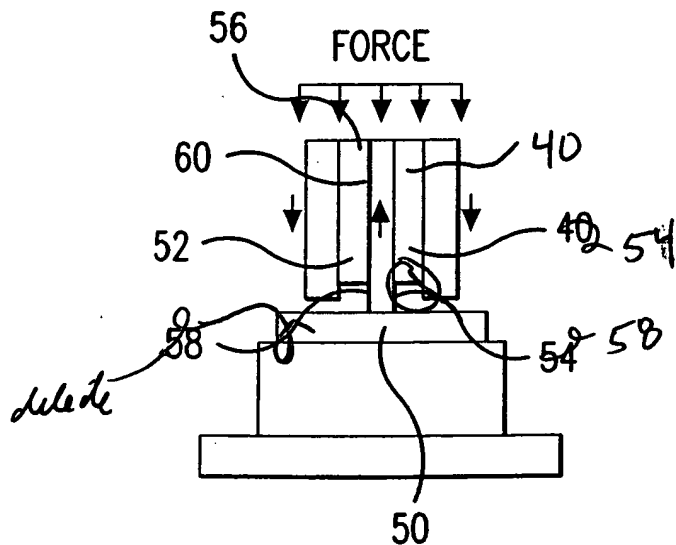


FIG. 10b